

Date: Thursday, 29/05/2008 9:05:40 AM
 User: Julie Lecocq

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services		Drawing Name	: 412 X-TUBE INST,LOW NARROW FWD		
Job Number	: 39548			Part Number	: D412664105TRN	
Estimate Number	: 13209			Drawing Number	: D412-664-145 REV C	
P.O. Number	:			Project Number	: N/A	
This Issue	: 29/05/2008		S.O. No.	:		
Prsht Rev.	: NC			Drawing Revision	: C	
First Issue	: / /		Type	: CROSSTUBES		
Previous Run	: 39547			Material	:	
Written By	:			Due Date	: 13/06/2008	
Checked & Approved By	: <u>Jul 08.5.29</u>			Qty:	1 Um: Each	
Comment	: Est Rev:A New Issue 08-03-06 DD verified by:ec					
	: Est Rev B 08.04.02 Removed polish EC verified by: DD					

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :	
1.0	D6019128	Crosstube Material	
		Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)	
		Pick:	
		Qty Part number Description Batch	
		1 D6019-128 Crosstube <u>3.32310</u>	
		Check OD = 2.7500"; ID =	<u>Am 08-06-230</u>
2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE	
		Comment: MORISEIKI	
		1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA689	
		2-Turn first side as per Folio FA689	
		3- File transition lines smooth.	<u>Am 08.06.25 ①</u>
3.0	QC1	INSPECT ALL DIM TO DIM SHEET	
		Comment: INSPECT ALL DIM TO DIM SHEET	<u>Am 08.06.25 ①</u>
4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE	
		Comment: MORI SEIKI CNC LATHE LARGE	
		1-Turn second side as per Folio FA689	
		3- File transition lines smooth.	
		3- Remove sand and plugs	<u>Am 08.06.25 ①</u>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 412 X-TUBE INST,LOW NARROW FWD

Job Number: 39548

Part Number: D412664105TRN

Job Number:



Seq. #: Machine Or Operation:

Description :

4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-145
engrave on outside of tube)

Inside of Cuff(Donot

Q.M 08.06.250

5.0 QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

Q.M 08.06.250

6.0 QC8

SECOND CHECK



AWN
8-6-25



Comment: SECOND CHECK

7.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



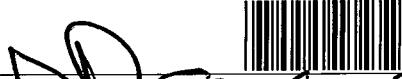
Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

BT 08-06-26

8.0 QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DP 8-6-26

9.0 PACKAGING 1

PACKAGING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Identify and stock in kanban rack

Location: X-tube cell

BT 08-06-26

10.0 QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

MF 08-06-30

Job Completion



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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	39548
Description: Crosstube Assembly (412 Low Narrow Fwd)	Part Number:	D412-664-145
Inspection Dwg: D412-664-145 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.740	+0.005/-0.000 2.740	/			
	2.490	+0.005/-0.000 2.491	/			
	2.557	+0.005/-0.000 2.562	/			
	2.624	+0.005/-0.000 2.627	/			
	2.692	+0.005/-0.000 2.693				
SIDE B	2.740	+0.005/-0.000 2.741	/			
	2.490	+0.005/-0.000 2.492	/			
	2.557	+0.005/-0.000 2.562	/			
	2.624	+0.005/-0.000 2.628	/			
	2.692	+0.005/-0.000 2.691	/			
124.48	+/-0.020	124.480	/			

Measured by:	<i>A.m</i>	Audited by:	<i>ALM</i>	Prototype Approval:	N/A
Date:	<i>08.06.25</i>	Date:	<i>8-6-25</i>	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.04.21	New Issue (P/O D412-664-105)	<i>KJ/DD</i>	<i>AL</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D412-664-145	
DATE		TITLE CROSSTUBE ASS'Y (412 LOW-N FWD) NTS	
07.03.29		SCALE	
A	06.12.21	NEW ISSUE	
B	07.03.01	CHG RUBBER CUSHION	
C	07.03.29	CHG CLAMP & RUBBER CUSHION LGTH.	

RELEASED07.04.24 ~~HP~~**PARTS LIST:**

Qty	Part Number	Description
X	D412-664-145	CROSSTUBE ASSEMBLY (412 LOW-NARROW FWD)
1	D6019-128	CROSSTUBE
1	D2856-250-842	ABRASION STRIP
2	D2893-1	SUPPORT
1	D3189-3	CHAFING SHIELD
4	D3595-063-450	RUBBER CUSHION
2	MS21920-24	CLAMP
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6019-128
FINISHED LENGTH = 124.48±0.020 (BEFORE BENDING/TRIMMING)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR D3189-3 CHAFING SHIELD AND ASSOCIATED HARDWARE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-XXX-YYY ABRASION STRIPS WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING. SHOP COPY
- 12) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURENT TO D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE ENGINEERING CROSSTUBE SUPPORT. UNCONTROLLED COPY
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. SUBJECT TO AMENDMENT

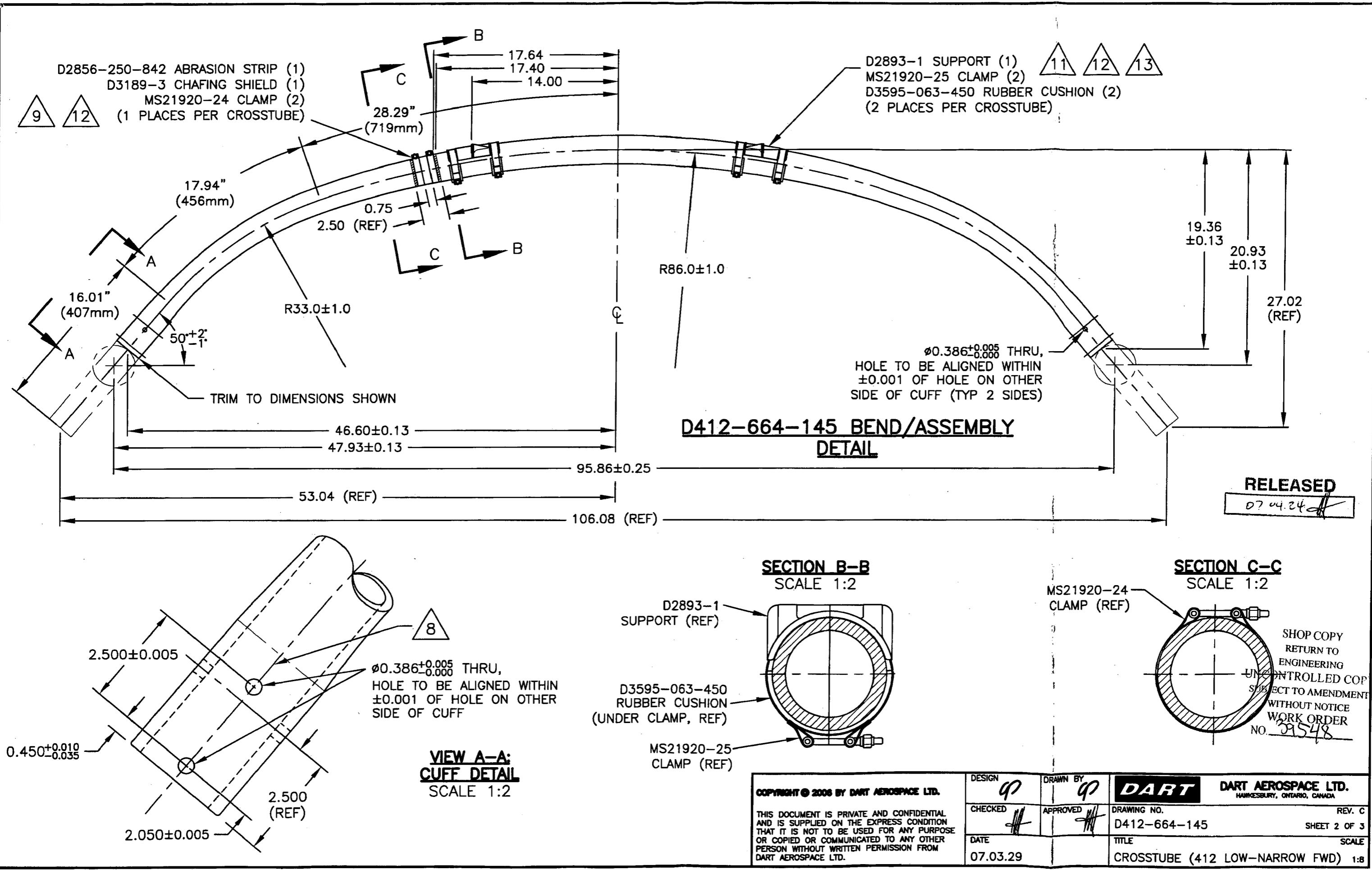
WITHOUT NOTICE
WORK ORDER
NO. 31548

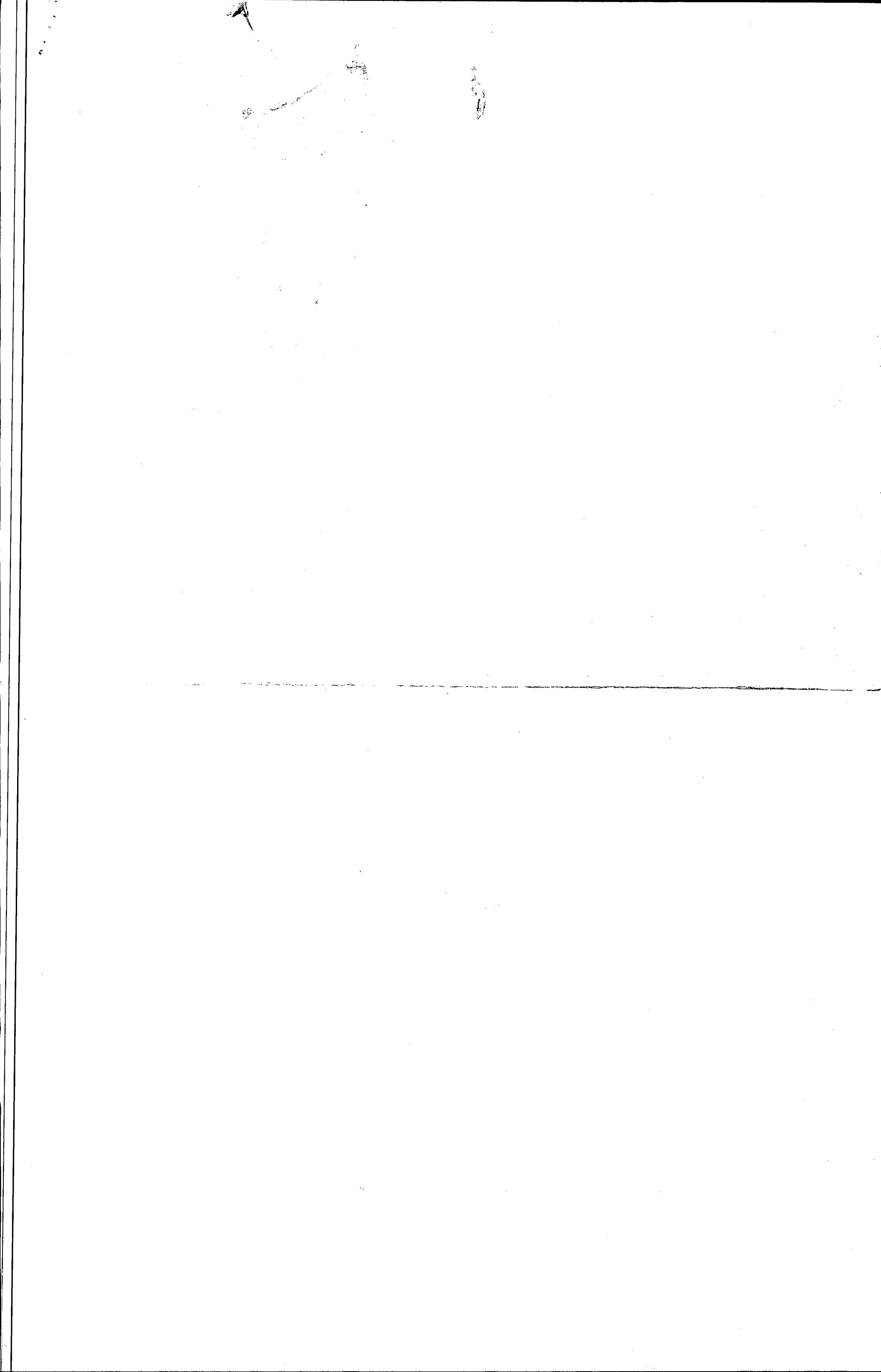
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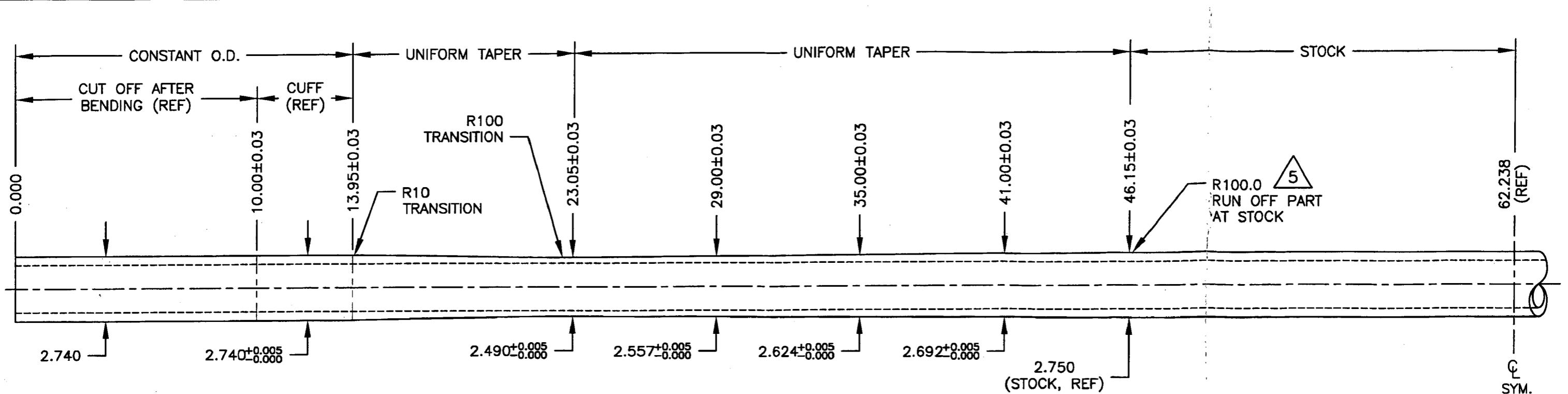
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D412-664-145 MACHINING DETAIL

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 39548

RELEASED

07.04.1987

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DART AEROSPACE LTD.

DESIGN	<i>QP</i>	DRAWN BY	<i>QP</i>	DART	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED	<i>✓</i>	APPROVED	<i>✓</i>	DRAWING NO.	D412-664-145
DATE	07.03.29	TITLE	CROSSTUBE (412 LOW-NARROW FWD)	SCALE	1:4

